

REMARKS/ARGUMENTS

The specification has been amended to correct typographical errors and minor editorial problems. A substitute specification has been filed herewith.

The Office Action mailed on April 23, 2003, has been received and reviewed. Claims 1-58 are currently pending in the application. Claims 1-24 and 37-58 have been withdrawn from consideration as being drawn to non-elected invention(s). Claims 25-36 stand rejected. Applicant has amended claims 25-33, cancelled claims 34-36, and respectfully requests reconsideration of the application as amended herein.

35 U.S.C. § 112 Claim Rejections

Claims 25-36 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has canceled claims 34-36, rendering the rejection moot as to these claims. Applicant has amended claims 25-33 and respectfully requests that the indefiniteness rejections be withdrawn.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on Strauss '868 in View of Bazaki, Warren, Strauss '557, and Lee

Claims 25-27 and 34-36 stand rejected under 35 U.S.C. § 103(a) ("Section 103") as being unpatentable over U.S. Patent No. 5,690,868 to Strauss *et al.* ("Strauss '868"), in view of U.S. Patent No. 6,206,988 to Bazaki ("Bazaki"), U.S. Patent No. 6,168,677 to Warren ("Warren"), U.S. Patent No. 5,716,557 to Strauss *et al.* ("Strauss '557"), and U.S. Patent No. 6,214,137 to Lee *et al.* ("Lee"). Applicant has canceled claims 34-36, rendering the rejection moot as to these claims. Applicant respectfully traverses this rejection as to claims 25-33, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must

be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicant respectfully submits that the Section 103 obviousness rejections of claims 25-27 are improper because the cited references do not teach or suggest all the limitations of the recited claims. The cited references also do not provide a motivation to combine to produce the claimed invention.

Strauss '868 discloses a multi-layer propellant having a layer of a slow burning propellant and a layer of a fast burning propellant. Formulations of the slow burning and the fast burning propellants are formed separately into layers and are bonded together into a desired shape. Binders in each of the formulations allow the layers to bond together. The slow burning propellant includes RDX and the fast burning propellant includes 2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.0^{5,9}0^{3,11}]-dodecane (CL-20).

Bazaki discloses a hexanitrohexaazaisowurtzitane composition having hexanitrohexaazaisowurtzitane, polynitropolyacetylhexaazaisowurtzitanes, and one or more oxaisowurtzitane compounds.

Warren discloses an RDX-based propellant composition having bismuth salicylate or bismuth citrate.

Strauss '557 discloses a method of making an explosive or propellant that includes a binder and an explosive material, such as CL-20, RDX, bis-2,2-(dinitropropyl)acetal and bis-2,2-(dinitropropyl)formal, or mixtures thereof. The explosive material is melted at a temperature above its melting point. The binder is then added to the molten explosive material and the mixture is extruded or melt cast into its desired shape.

Lee discloses a CL-20 composition including 85-95% CL-20 and 5-15% of a binder system having at least one non-energetic binder and at least one energetic plasticizer.

As proposed to be amended, claim 25 recites an explosive composition that comprises about 45 weight percent to about 69 weight percent RDX, about 0.5 weight percent to about 2.25 weight percent polyisobutylene, about 15 weight percent to about 30 weight percent CL-20, and about 15 weight percent to about 25 weight percent bis(dinitropropyl)acetal and bis(dinitropropyl)formal (BDNPA/F). The weight percentages of the ingredients are based on a total weight of the explosive composition.

The cited references do not teach or suggest all the limitations of claim 25 because they do not teach or suggest an explosive composition that comprises “about 0.5 weight percent to about 2.25 weight percent polyisobutylene.” None of the cited references disclose using polyisobutylene as a component in their respective explosive or propellant compositions. Therefore, the cited references also do not teach or suggest an explosive composition that includes the claimed percentage range of polyisobutylene.

Since the cited references do not teach or suggest an explosive composition that includes polyisobutylene, none of the cited references teach or suggest an explosive composition that includes RDX, polyisobutylene, CL-20, and BDNPA/F. Furthermore, the cited references do not teach or suggest the claimed percentage ranges of each of these ingredients. Specifically, the cited references do not teach or suggest an explosive composition that includes about 45 weight percent to about 69 weight percent RDX, about 0.5 weight percent to about 2.25 weight percent polyisobutylene, about 15 weight percent to about 30 weight percent CL-20, and about 15 weight percent to about 25 weight percent BDNPA/F.

While Strauss ‘868 and Strauss ‘577 disclose using RDX, CL-20, and BDNPA/F, they are silent regarding the amounts of each of these components in their propellant composition. Therefore, Strauss ‘868 and Strauss ‘577 do not teach or suggest that the RDX is present from “about 45 weight percent to about 69 weight percent,” the CL-20 is present from “about 15 weight percent to about 30 weight percent,” or the BDNPA/F is present from “about 15 weight percent to about 25 weight percent,” as recited in claim 25.

Similarly, in Bazaki, there is no teaching or suggestion that the RDX and CL-20 are present at the claimed percentage ranges. Furthermore, Bazaki does not disclose using

BDNPA/F in its composition and, therefore, does not teach or suggest that the BDNPA/F is present from about 15 weight percent to about 25 weight percent.

Warren does not disclose that BDNPA/F is present in its composition and, therefore, Warren does not teach or suggest that the BDNPA/F is present from about 15 weight percent to about 25 weight percent. Warren also does not teach or suggest that the CL-20 is present from about 15 weight percent to about 30 weight percent.

While Lee discloses a composition including CL-20 and BDNPA/F, there is no teaching or suggestion that the composition includes RDX. Therefore, Lee does not teach or suggest that the RDX is present from about 45 weight percent to about 69 weight percent. In addition, Lee does not teach or suggest that the CL-20 is present from about 15 weight percent to about 30 weight percent or the BDNPA/F is present from about 15 weight percent to about 25 weight percent.

In addition to not teaching or suggesting all the limitations of claim 25, the cited references also do not provide a motivation to combine. To provide a motivation or suggestion to combine, the prior art or the knowledge of a person of ordinary skill in the art must "suggest the desirability of the combination" or provide "an objective reason to combine the teachings of the references." M.P.E.P. § 2143.01. However, nothing in any of the cited references provides an objective reason for, or the desirability of, combining the cited references to produce an explosive composition having the recited ingredients.

The Examiner states that "it would have been obvious to use a thin layer of the notoriously well known C-4 (PBX) explosive which is essentially RDX with about 10% binder ingredients, having a thickness that is thinner than the minimum detonation thickness, as the slow burn RDX layers, along with the preferred CL-20 fast burn layers. Such would comprise these claims as broadly set forth." Office Action of April 23, 2003, p. 2. However, this conclusory statement by the Examiner does not suggest any desirability for the combination or provide an objective reason for the combination. Furthermore, even if the cited references were combined, the claimed invention would not be produced because the resulting explosive composition would not include polyisobutylene.

The Examiner also states that it would have been obvious to one of ordinary skill in the art to vary the “notoriously well known ingredients and amounts.” *Id.* However, contrary to the Examiner’s assertions, the claimed invention does not differ from the cited references in merely reciting a different range of the amounts of the ingredients. Rather, the claimed invention is directed to an explosive composition comprising RDX, polyisobutylene, CL-20, and BDNPA/F, which is not taught or suggested by the cited references.

The Examiner also states that “it is prima facie obvious to combine two compositions . . . each taught for the same purpose, to yield a third composition for that very purpose.” *Id.* at p. 3. However, the explosive composition of the present invention is disclosed to have superior shapeability at room temperature and, thus, does not have the same purpose as the C-4 composition or the CL-20 composition in Lee. Therefore, contrary to the Examiner’s assertions, it would not have been obvious to combine the C-4 composition and the CL-20 composition in Lee to produce the explosive composition of the present invention.

Since the cited references do not teach or suggest all the limitations of claim 25 or provide a motivation to combine, Applicants respectfully submit that the obviousness rejection of claim 25 be withdrawn.

Dependent claims 26 and 27 are allowable, *inter alia*, as depending from an allowable base claim.

Claim 26 is further allowable because none of the cited references teach or suggest that the CL-20 is present from 15 weight percent to 20 weight percent and the BDNPA/F is present from about 15 weight percent to about 19 weight percent.

Claim 27 is further allowable because none of the cited references teach or suggest that the ratio of RDX and polyisobutylene to CL-20 and BDNPA/F is in a range of 1:1 to 3:1.

Double Patenting Rejection Based on U.S. Patent No. 6,214,137 to Lee

Claims 25-27 and 34-36 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Lee. Claims 34-36 have been canceled, rendering the double patenting rejection moot as to these claims.

Applicant respectfully traverses the double patenting rejection as to claims 25-27. The rejection of claims 25-27 is improper because these claims are not an obvious variation of the invention defined in claim 1 of Lee. Specifically, claim 25 is not an obvious variation of claim 1 of Lee because claim 1 does not teach or suggest that the RDX is present from about 45 weight percent to about 69 weight percent, that the polyisobutylene is present from about 0.5 to 2.25 weight percent, that the CL-20 is present from about 15 weight percent to about 30 weight percent, or the BDNPA/F is present from about 15 weight percent to about 25 weight percent, as recited in claim 25. Rather, claim 1 of Lee recites an explosive formulation having 85-96 weight percent CL-20, a non-energetic binder comprising cellulose acetate butyrate, and an energetic plasticizer comprising BDNPA/F. Claim 1 of Lee also does not teach or suggest all the limitations of claims 26 and 27, which further limit the percentage of BDNPA/F and recite a weight ratio of RDX and polyisobutylene to CL-20 and BDNPA/F.

The Examiner states that that the claims of the present invention are not patentably distinct from claim 1 of Lee “because of clear overlap as to the CL-20 part of the composition.” *Id.* at p. 4. However, overlap of the CL-20 portion of the composition does not indicate that claims 25-27 are an obvious variation of the invention defined in claim 1 of Lee.

Withdrawal of the double patenting rejection is respectfully requested.

Allowable Subject Matter

Claims 28-33 are deemed free of the prior art and are indicated to contain allowable subject matter. Applicant notes with appreciation the indication of allowable subject matter.

ENTRY OF AMENDMENTS

The amendments to claims 25-33 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 25-33 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



Joseph A. Walkowski
Registration No. 28,765
Attorney for Applicant(s)
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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JAW/ps:ljb/csw

Enclosures: Appendices A and B

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